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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,094	02/26/2002	Martin Smith	476-2094	5423
23644	7590	05/17/2005	EXAMINER	
BARNES & THORNBURG P.O. BOX 2786 CHICAGO, IL 60690-2786			AGHDAM, FRESHTEH N	
			ART UNIT	PAPER NUMBER
			2631	
DATE MAILED: 05/17/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/083,094

Applicant(s)

SMITH ET AL.

Examiner

Freshteh N. Aghdam

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

Claims 7 and 8 are objected to because of the following informalities:

As to claims 7 and 8, the word 'substantially' should be replaced by a more accurate word in order to overcome indefiniteness at page 30.

As to claim 8, the expression "the first pair" is indefinite and lacks antecedent basis.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-9 and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Rudrapatna (US 6,801,790).

As to claims 1, 3, 11, and 13, Rudrapatna teaches transmitting and/or receiving signals from a plurality of antenna elements; and a combiner arranged to adaptively

Art Unit: 2631

combine the antenna elements in such a way that two or more directional diverse antenna beams are provided (Fig. 1; Col. 3, 25-34, 38-40, and 45-49).

As to claim 2, Rudapatna teaches a multiple antenna system within a wireless communication system that can operate in multiple input multiple output (MIMO) mode for receiving and/or transmitting signals. One of ordinary skill in the art would clearly recognize that such wireless communication systems are MIMO.

As to claim 4, Rudapatna teaches antenna beams, which are diverse, as a result of any of polarization diversity, angle diversity, and space diversity (Col. 5, Lines 8-20).

As to claim 5, Rudapatna teaches combining antenna elements using beam forming/steering mode (Col. 3, 38-40).

As to claim 6, Rudapatna teaches routing signals according to amplitude, phase, code, or time slot to allow the antenna array operate in one of the three modes or operate in any combination of the three modes (Col. 6, Lines 50-67; Col. 7, Lines 1 and 2).

As to claim 7, Rudapatna teaches a pair of antenna beams with substantially orthogonal polarizations and at substantially similar directions (Fig. 1 and 2, Col. 5, Lines 8-37).

As to claim 8, Rudapatna teaches a second pair of antenna beams provided with substantially orthogonal polarizations to one another and at substantially similar directions but being at a different direction from the first pair of antenna beams (Fig. 1 and 2, Col. 5, Lines 8-37).

Art Unit: 2631

As to claim 9, Rudapatna teaches combining antenna elements using beam forming/steering mode (Col. 3, Lines 38-41).

As to claims 12 and 14, Rudapatna teaches a MIMO communication system wherein the transmitted and/or received signals are time space coded and the diverse antenna beams are MIMO (Col. Col. 1, Lines 46-50; Col. 3, Lines 38-41).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rudapatna.

As to claim 10, Rudapatna teaches all the subject matters as recited in claim 1, except for a communication network comprising a plurality of radio communications devices. One of ordinary skill in the art would clearly recognize that a communication network comprises of a plurality of radio communication systems (i.e. transmitters, receivers, transceivers, BSs, MSs, and so on). Therefore, it would have been obvious to one of ordinary skill in the art to apply the teaching of Rudapatna in order to perform suitable antenna configurations (Col. 3, Lines 1-8).

### ***Conclusion***

Art Unit: 2631

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shapira (US 2003/0073463), Martek et al (US 6,351,237), Ward et al (US 6,167,286), Reudink (US 6,512,480), Reudink et al (US 6,405,018), Reece et al (US 2002/0015000).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571) 272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Application/Control Number: 10/083,094

Page 6

Art Unit: 2631

Freshteh Aghdam

May 6, 2005.



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SUPERVISORY PATENT EXAMINER  
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